REMARKS

This Amendment is submitted in response to the final Office Action mailed on June 6, 2008. No fee is due in connection with this Amendment. The Director is authorized to charge any fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112857-470 on the account statement.

Claims 1-51 are pending in this application. Claims 1-35 and 37 were previously canceled without prejudice or disclaimer. In the Office Action, Claims 36 and 38-51 are rejected under 35 U.S.C. §103. In response, Claims 36, 38-39, 41-45 and 47 have been amended. These amendments do not add new matter. At least in view of the amendments and/or for the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

Applicants note that dependent Claims 38, 42-45 and 47-48 have been amended solely for clarification purposes in order to have proper antecedent basis from and thereby be consistent with currently amended independent Claims 36, 39 and 41.

In the Office Action, Claims 36, 38-39, 41-43, 45 and 47-51 are rejected under 35 U.S.C. §103(a) as being unpatentable over WO 02/084631 A1 to Hayashi et al. as evidenced by U.S. Patent No. 6,872,635 B2 to Hayashi et al. ("*Hayashi*") in view of U.S. Patent No. 5,426,342 to Nakamura et al. ("*Nakamura*"). In response, Applicants have amended independent Claims 36, 39 and 41. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that the cited references fail to disclose or suggest each and every element of the present claims.

Currently amended independent Claims 36 and 41 recite, in part, a method comprising embedding a plurality of first devices into an uncured pressure sensitive adhesive layer provided on a first substrate such that the plurality of first devices penetrate the surface of the uncured pressure sensitive adhesive layer; embedding a plurality of second devices arranged on a second substrate into the uncured pressure sensitive adhesive layer provided on the first substrate by positioning the first and second substrates in close proximity thereof such that the plurality of second devices arranged on the second substrate penetrate the surface of the uncured pressure sensitive adhesive layer; and stripping the plurality of second devices from the second substrate while the pressure sensitive adhesive layer is in an uncured state thereby holding the plurality of first and second devices in an embedded state within the uncured pressure sensitive adhesive

layer, wherein the first devices and second devices are light emitting diodes having different characteristics. Similarly, currently amended independent Claim 39 recites, in part, a method comprising embedding devices arranged on a first substrate into an uncured pressure sensitive adhesive layer provided on a second substrate by positioning the first and second substrates in close proximity thereof such that the devices arranged on the first substrate penetrate the surface of the uncured pressure sensitive adhesive layer, wherein the devices are light emitting diodes; and stripping the devices from the first substrate while the pressure sensitive adhesive layer is in an uncured state thereby holding the devices in an embedded and uncured state within the pressure sensitive adhesive layer. These amendments do not add new matter. The amendments are supported in the Specification at, for example, paragraph 10; paragraph 11, lines 1-6; paragraph 14, lines 1-8; paragraph 46, lines 1-6; paragraph 47, lines 6-14; paragraph 49, lines 1-8; paragraph 62, lines 14-20; paragraph 63, lines 1-6; paragraph 73, lines 1-12; and Figures 3, 10-11.

An image display unit using light emitting devices such as light emitting diodes ("LEDs") is produced at a low cost by manufacturing a large number of LEDs from a single wafer. See, Specification, paragraph 5, lines 1-4. Prior art display units are manufactured by rearranging a plurality of devices formed on a device formation substrate onto an apparatus substrate. See, Specification, paragraph 6, lines 1-4. The devices are first transferred from the device formation substrate to an adhesive layer provided on a temporary holding substrate and then transferred from the temporary holding substrate to the apparatus substrate. See, Specification, paragraph 6, lines 4-9. In transferring the devices from the temporary holding substrate to the apparatus substrate, an adhesive layer is provided between the temporary holding substrate and the apparatus substrate to adhere the two substrates to each other. See, Specification, paragraph 7, lines 1-7. Before stripping the two substrates from each other, the adhesive layer is cured while the devices are embedded in it. See, Specification, paragraph 7, lines 7-16. Due to the strong adhesion between the two substrates, stripping the two substrates from each other may cause damage to the substrates. See, Specification, paragraph 7, lines 7-13. Furthermore, because the adhesive layer is cured or hardened before stripping, the apparatus substrate is damaged such that it may be difficult to subsequently transfer devices onto the same apparatus substrate. See, Specification, paragraph 7, lines 14-18.

Therefore, the present claims provide a method of manufacturing an image display unit by embedding devices arranged on a first substrate into a pressure sensitive adhesive layer provided on a second substrate and stripping the devices from the first substrate before the pressure sensitive adhesive layer is hardened or cured. See, Specification, paragraph 9, lines 1-6; paragraph 10, lines 13-15. The plurality of devices are arranged on the first substrate by bringing the devices into contact with a temporary adhesion layer provided on the first substrate. See, Specification, paragraph 12, lines 1-5. The plurality of devices are collectively embedded within the pressure sensitive adhesive layer by positioning the first and second substrates in close proximity to each other such that the plurality of devices penetrate the surface of the pressure sensitive adhesive layer. See, Specification, paragraph 10, lines 6-10; Figure 3. Because the devices are embedded within the pressure sensitive adhesive layer rather than merely affixed to its surface, the devices may be mounted onto the second substrate independently of their shapes. See, Specification, paragraph 10, lines 1-6. In addition, since the devices may be embedded within the pressure sensitive adhesive layer merely by positioning the two substrates in close proximity thereof, direct contact between the first and second substrates is not required and the force required to separate the first and second substrates may be lowered, thereby reducing the possibility of damaging the substrates. See, Specification, paragraph 14, lines 1-8. Furthermore, by stripping the devices from the first substrate while the pressure sensitive adhesive layer is still uncured, the force required to separate the first and second substrates may be further reduced. See, Specification, paragraph 10, lines 13-19. It is also possible to embed additional devices into the pressure sensitive adhesive layer by embedding the additional devices within the adhesive layer and stripping the additional devices from the substrate on which they are arranged before the pressure sensitive adhesive layer is cured. See, Specification, paragraph 11, lines 1-6. In contrast, the cited references fail to disclose or suggest every element of the present claims.

For example, the cited references fail to disclose or suggest embedding devices arranged on a first substrate into an uncured pressure sensitive adhesive layer provided on a second substrate such that the devices arranged on the first substrate penetrate the surface of the uncured pressure sensitive adhesive layer as recited, in part, by currently amended independent Claims 36, 39 and 41. The Examiner asserts that *Hayashi* discloses embedding devices arranged on a first substrate into an uncured adhesive layer provided on a second substrate. See, Office Action, page 2, lines 17-20. However, the portions of *Hayashi* relied on by the Examiner merely

disclose bringing the devices into press contact with the adhesive layer and fixing the devices to the surface of the adhesive layer. See, *Hayashi*, column 11, lines 26-30 and 41-48; column 30, lines 10-13 and 18-26; Figures 2D and 18A-18C. As clearly expressed in *Hayashi*, "[t]he thermoplastic adhesive layer. . . is then cooled to be cured, to fix the devices 3 to the thermoplastic adhesive layer 82. That is to say, the softened thermoplastic layer 82 exhibits an adhesive force against the devices 3." See, *Hayashi*, column 30, lines 18-22. Furthermore, Figures 2D and 18A-18C demonstrate that *Hayashi* only teaches fixing the devices to the surface of the adhesive layer. See, *Hayashi*, Figures 2D and 18A-18C. Unlike *Hayashi*, the method of the present claims requires embedding the devices within the pressure sensitive adhesive layer rather than merely affixing the devices to its surface in order to reduce the force required to separate the first and second substrates and thereby decrease the possibility of damaging the substrates. See, Specification, paragraph 10, lines 6-10; paragraph 14, lines 1-8; Figure 3. Nowhere does *Hayashi* disclose or suggest embedding the devices such that the devices arranged on the first substrate penetrate the surface of the uncured pressure sensitive adhesive layer. Furthermore, the Examiner relies on *Nakamura* merely for the disclosure of a heat sensitive and pressure sensitive adhesive layer. See, Office Action, page 3, lines 8-12. Nowhere does *Nakamura* disclose or suggest embedding devices within a pressure sensitive adhesive layer such that the devices penetrate the surface of the uncured pressure sensitive adhesive layer. Therefore, Applicants respectfully submit that the cited references fail to disclose or suggest embedding devices arranged on a first substrate into an uncured pressure sensitive adhesive layer provided on a second substrate such that the devices arranged on the first substrate penetrate the surface of the uncured pressure sensitive adhesive layer as required, in part, by the present claims.

Moreover, the cited references fail to disclose or suggest embedding devices arranged on a first substrate into an uncured pressure sensitive adhesive layer provided on a second substrate by positioning the first and second substrates in close proximity thereof. *Hayashi* is entirely directed to transferring devices from a first substrate to a second substrate by bringing the devices into press contact with the second substrate and fixing the devices to the surface of the adhesive layer provided on the second substrate. See, *Hayashi*, column 11, lines 26-30 and 41-48; column 30, lines 10-13 and 18-26; Figures 2D and 18A-18C. Nowhere does *Hayashi* disclose or suggest embedding the devices arranged on a first substrate into an adhesive layer

provided on a second substrate by merely positioning the first and second substrates in close proximity to each other. In fact, because *Hayashi* is entirely directed to fixing the devices on the first substrate to the surface of the adhesive layer, the first and second substrates must be brought into press contact. See, *Hayashi*, column 8, lines 61-66; column 10, lines 12-16 and 36-40; column 11, lines 9-14. Due to the strong adhesion between each of the first and second substrates and the adhesive layer, the force required to strip the first and second substrates from each other is great and may cause damage to the substrates. See, Specification, paragraph 7, lines 5-14. Unlike *Hayashi*, the present claims are directed to embedding devices arranged on a first substrate into an adhesive layer provided on a second substrate merely by positioning the first and second substrates in close proximity to each other. Because direct contact between the two substrates is not necessary, the force required to strip the first and second substrates from each other is reduced. See, Specification, paragraph 14, lines 1-8. Therefore, *Hayashi* fails to disclose or suggest embedding devices on a first substrate into an adhesive layer on a second substrate by positioning the first and second substrates in close proximity thereof. The Examiner relies on *Nakamura* merely for the disclosure of a heat sensitive and pressure sensitive adhesive layer. See, Office Action, page 3, lines 8-12. Nowhere does *Nakamura* disclose or suggest embedding devices within a pressure sensitive adhesive layer by positioning the first and second substrates in close proximity thereof. As such, the cited references fail to disclose or suggest embedding devices arranged on a first substrate into an uncured pressure sensitive adhesive layer provided on a second substrate by positioning the first and second substrates in close proximity thereof in accordance with the present claims.

Furthermore, the cited references fail to disclose or suggest stripping the devices from the first substrate while the pressure sensitive adhesive layer is in an uncured state as recited, in part, by independent Claims 36, 39 and 41. *Hayashi* is entirely directed to selectively transferring devices from a first substrate to a second substrate by curing the portions of the adhesive layer corresponding to the devices. See, *Hayashi*, Abstract, lines 5-19. The devices are transferred from the first substrate to the second substrate by placing the devices on the first substrate in pres contact with the adhesive layer on the second substrate. See, *Hayashi*, column 11, lines 26-33. The adhesive layer is then cooled and cured to fix the devices to the adhesive layer. See, *Hayashi*, column 11, lines 40-49; column 12, lines 15-17. The first substrate is stripped from the second substrate after the adhesive layer is cured. See, *Hayashi*, column 12, lines 45-49 ("After

the devices **3***a* are fixed to the transfer substrate **6** via. . . curing due to cooling, the temporary holding substrate **4** is peeled from the transfer substrate **6**"). Therefore, Hayashi fails to disclose stripping the devices from the first substrate while the pressure sensitive adhesive layer is in an uncured state.

The Examiner asserts that, although certain portions of *Hayashi* disclose curing prior to stripping the substrates from each, *Hayashi* also discloses transferring devices prior to complete curing of the adhesive layer. See, Office Action, page 11, lines 16-22. However, the portion of *Hayashi* relied on by the Examiner expressly states that "the heating is stopped to cool and cure the thermoplastic adhesive layer **82** so that the devices **3** are transferred to the transfer substrate **83** via the thermoplastic adhesive layer **82**. The transfer substrate 83 is then peeled from the base substrate 1." See, *Hayashi*, column 30, lines 23-28. Therefore, the adhesive layer is cured before stripping the substrates from each other. *Hayashi* also discloses further cooling the adhesive layer to room temperature after stripping in order to certainly fix the devices to the transfer substrate. See, *Hayashi*, column 30, lines 28-30. However, contrary to the Examiner's assertion, see, Office Action, page 12, lines 4-22, nowhere does *Hayashi* disclose that the adhesive layer is not completely cured prior to the final cooling step. In fact, because *Hayashi* discloses that the adhesive layer is cured prior to stripping, the final cooling step entails merely further cooling the adhesive layer to room temperature after it is cured. See, *Hayashi*, column 30, lines 22-26. Furthermore, even if, as the Examiner asserts, the adhesive layer is only partially cured prior to stripping the substrates from each other, *Hayashi* still fails to disclose stripping the devices from the first substrate while the pressure sensitive adhesive layer is in an uncured state. For example, if the adhesive layer is partially cured, it is still partially hardened and not in an uncured state. As such, *Hayashi* fails to disclose stripping the devices from the first substrate while the pressure sensitive adhesive layer is in an uncured state as required, in part, by independent claims 36, 39 and 41 and Claims 38, 42-43, 45 and 47-51 that depend therefrom.

Accordingly, Applicants respectfully request that the rejection of Claims 36, 38-39, 41-43, 45 and 47-51 under 35 U.S.C. §103(a) to *Hayashi* and *Nakamura* be withdrawn.

In the Office Action, Claims 40 and 44-46 are rejected under 35 U.S.C. §103(a) as being unpatentable over WO 02/084631 A1 to Hayashi et al. as evidenced by *Hayashi* in view of *Nakamura*, and further in view of U.S. Patent Application No. 2003/0227253 to Seo et al.

("*Seo*"). As discussed previously, *Hayashi* and *Nakamura* fail to disclose or suggest: (1) embedding devices arranged on a first substrate into an uncured pressure sensitive adhesive layer provided on a second substrate by positioning the first and second substrates in close proximity thereof such that the devices arranged on the first substrate penetrate the surface of the uncured pressure sensitive adhesive layer; and (2) stripping the devices from the first substrate while the pressure sensitive adhesive layer is in an uncured state as required, in part, by independent Claims 39 and 41 from which Claims 40 and 44-46 depend. The Examiner further relies on *Seo* merely for the disclosure of driving methods that include impressing a voltage on the devices through the first and second electric wirings. See, Office Action, page 10, lines 1-7 and 13-19; page 11, lines 3-9. Thus, Applicants respectfully submit that *Seo* fails to remedy the deficiencies of *Hayashi* and *Nakamura*.

Accordingly, Applicants respectfully request that the rejection of Claims 40 and 44-46 under 35 U.S.C. §103(a) to *Hayashi*, *Nakamura* and *Seo* be reconsidered and withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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